

Material Safety Data Sheet



Trichlorofluoromethane (R-11)

Section 1. Chemical product and company identification

- Product Name** : Trichlorofluoromethane (R-11)
- Supplier** : AIRGAS INC., on behalf of its subsidiaries
259 North Radnor-Chester Road
Suite 100
Radnor, PA 19087-5283
1-610-687-5253
- Synonym** : methane, trichlorofluoro-; monofluorotrichloromethane; trichlorofluoromethane; trichlorofluoro methane; freon 11; refrigerant 11; f-11; genetron 11; freon mf; nci-c04637; trichloromonofluoromethane; cfc-11; cfc 11; propellant 11; frigen 11; halon 11; fc 11; khaladon 11; kaltron 11; isotron 11; eskimon 11
- Material uses** : Other non specified industry: SOLVENT; FIRE EXTINGUISHERS; CHEMICAL INTERMEDIATE; BLOWING AGENT.
- MSDS#** : 001052
- Date of Preparation/Revision** : **6/29/2007.**
- In case of emergency** : 1-866-734-3438

Section 2. Hazards identification

- Physical state** : Liquid. (COLORLESS LIQUID OR GAS WITH A CHLORINATED SOLVENT ODOR WHICH IS DETECTABLE >20 % BY VOLUME)
- Emergency overview** : Warning!
CAUSES DAMAGE TO THE FOLLOWING ORGANS: PERIPHERAL NERVOUS SYSTEM, CARDIOVASCULAR SYSTEM, RESPIRATORY TRACT, SKIN, EYE, LENS OR CORNEA.
- Potential acute health effects**
- Eyes** : Irritating to eyes.
- Skin** : Irritating to skin.
- Inhalation** : Irritating to respiratory system.
- Ingestion** : No known significant effects or critical hazards.
- Potential chronic health effects** : **CARCINOGENIC EFFECTS** A4 (Not classifiable for human or animal.) by ACGIH.
MUTAGENIC EFFECTS Not available.
TERATOGENIC EFFECTS: Not available.
- Medical conditions aggravated by overexposure** : Repeated or prolonged exposure is not known to aggravate medical condition.
- See toxicological Information (section 11)

Section 3. Composition, Information on Ingredients

United States

fluorotrichloromethane 75-69-4 100

Exposure limits

ACGIH TLV (United States, 1/2005). Notes: 1996 Adoption Refers to Appendix A -- Carcinogens.

CEIL: 5620 mg/m³ Form: All forms

CEIL: 1000 ppm Form: All forms

NIOSH REL (United States, 12/2001).

CEIL: 5600 mg/m³ Form: All forms

CEIL: 1000 ppm Form: All forms

OSHA PEL (United States, 8/1997).

TWA: 5600 mg/m³ 8 hour(s). Form: All forms

TWA: 1000 ppm 8 hour(s). Form: All forms

Trichlorofluoromethane (R-11)

Section 4. First aid measures

- Eye contact** : In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.
- Skin contact** : In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.
- Inhalation** : If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if symptoms appear.
- Ingestion** : Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention if symptoms appear.

Section 5. Fire fighting measures

- Flammability of the product** : Non-flammable.
- Fire fighting media and instructions** : Use an extinguishing agent suitable for surrounding fires.
- No specific hazard.
- Special protective equipment for fire-fighters** : Fire fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full facepiece operated in positive pressure mode.

Section 6. Accidental release measures

- Personal precautions** : Immediately contact emergency personnel. Keep unnecessary personnel away. Use suitable protective equipment (Section 8).
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.
- Methods for cleaning up** : If emergency personnel are unavailable, contain spilled material. For small spills add absorbent (soil may be used in the absence of other suitable materials) scoop up material and place in a sealed, liquid-proof container for disposal. For large spills dike spilled material or otherwise contain material to ensure runoff does not reach a waterway. Place spilled material in an appropriate container for disposal.

Section 7. Handling and storage

- Handling** : Wash thoroughly after handling.
- Storage** : Keep container tightly closed. Keep container in a cool, well-ventilated area.

Section 8. Exposure Controls, Personal Protection

- Engineering controls** : Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective occupational exposure limits.
- Personal protection**
- Eyes** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.
- Skin** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory** : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
- Hands** : Chemical-resistant, impervious gloves or gauntlets complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
- Personal protection in case of a large spill** : Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self-contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Product name

Exposure limits

Trichlorofluoromethane (R-11)

United States

fluorotrichloromethane

ACGIH TLV (United States, 1/2005). Notes: 1996 Adoption Refers to Appendix A -- Carcinogens.

CEIL: 5620 mg/m³ Form: All forms

CEIL: 1000 ppm Form: All forms

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CEIL: 1000 ppm Form: All forms

OSHA PEL (United States, 8/1997).

TWA: 5600 mg/m³ 8 hour(s). Form: All forms

TWA: 1000 ppm 8 hour(s). Form: All forms

Section 9. Physical and chemical properties

Physical state	: Liquid. (COLORLESS LIQUID OR GAS WITH A CHLORINATED SOLVENT ODOR WHICH IS DETECTABLE >20 % BY VOLUME)
Odor	: ODORLESS; WEAK CHLORINATED SOLVENT
Molecular weight	: 137.36 g/mole
Molecular formula	: C-Cl ₃ -F
Boiling/condensation point	: 24.1°C (75.4°F)
Melting/freezing point	: -111.1°C (-168°F)
Critical temperature	: 198°C (388.4°F)
Specific gravity	: 1.484 (Water = 1)
Vapor density	: 4.7 (Air = 1)
Evaporation rate	: 19.4 compared to Butyl acetate.

Section 10. Stability and reactivity

Stability and reactivity	: The product is stable.
Conditions of instability	: Under normal conditions of storage and use, hazardous polymerization will not occur.
Incompatibility with various substances	: Highly reactive with organic materials, acids.
Hazardous decomposition products	: These products are halogenated compounds, hydrogen chloride, hydrogen fluoride.
Hazardous polymerization	: Will not occur.

Section 11. Toxicological information

Toxicity data

<u>Ingredient name</u>	<u>Test</u>	<u>Result</u>	<u>Route</u>	<u>Species</u>
fluorotrichloromethane	LC50	104800 ppm (1 hour(s))	Inhalation	Rat

IDLH	: 2000 ppm
Chronic effects on humans	: CARCINOGENIC EFFECTS A4 (Not classifiable for human or animal.) by ACGIH. Causes damage to the following organs: peripheral nervous system, cardiovascular system, upper respiratory tract, skin, eye, lens or cornea.
Other toxic effects on humans	: Not considered to be toxic for humans.
Specific effects	
Carcinogenic effects	: No known significant effects or critical hazards.
Mutagenic effects	: No known significant effects or critical hazards.
Reproduction toxicity	: No known significant effects or critical hazards.

Trichlorofluoromethane (R-11)

Section 12. Ecological information




- Products of degradation** : These products are carbon oxides (CO, CO₂), halogenated compounds.
- Toxicity of the products of biodegradation** : The product itself and its products of degradation are not toxic.

Section 13. Disposal considerations

- Waste disposal** : The generation of waste should be avoided or minimized wherever possible. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements.

Consult your local or regional authorities.

Section 14. Transport information

Regulatory information	UN number	Proper shipping name	Class	Packing group	Label	Additional information
DOT Classification	UN3082	RQ ENVIRONMENTALLY HAZARDOUS SUBSTANCE LIQUID, N.O.S. (TRICHLOROFLUOROMETHANE) (fluorotrichloromethane)	9	III		Reportable quantity 5000 lbs. (2268 kg)
TDG Classification	UN3082	RQ ENVIRONMENTALLY HAZARDOUS SUBSTANCE LIQUID, N.O.S. (TRICHLOROFLUOROMETHANE) (fluorotrichloromethane)	9	III		Explosive Limit and Limited Quantity Index 5
Mexico Classification	UN3082	RQ ENVIRONMENTALLY HAZARDOUS SUBSTANCE LIQUID, N.O.S. (TRICHLOROFLUOROMETHANE) (fluorotrichloromethane)	9	III		Reportable quantity 5000 lbs. (2268 kg)

Section 15. Regulatory information

United States

- HCS Classification** : Target organ effects
- U.S. Federal regulations** : TSCA 6 final risk management: fluorotrichloromethane
TSCA 8(b) inventory: fluorotrichloromethane
TSCA 12(b) annual export notification: fluorotrichloromethane
SARA 302/304/311/312 extremely hazardous substances: No products were found.
SARA 302/304 emergency planning and notification: No products were found.
SARA 302/304/311/312 hazardous chemicals: fluorotrichloromethane
SARA 311/312 MSDS distribution - chemical inventory - hazard identification:
fluorotrichloromethane: Immediate (Acute) Health Hazard
Clean Water Act (CWA) 307: No products were found.
Clean Water Act (CWA) 311: No products were found.

Trichlorofluoromethane (R-11)

Clean air act (CAA) 112 accidental release prevention: No products were found.
Clean air act (CAA) 112 regulated flammable substances: No products were found.
Clean air act (CAA) 112 regulated toxic substances: No products were found.

SARA 313

	<u>Product name</u>	<u>CAS number</u>	<u>Concentration</u>
Form R - Reporting requirements	: fluorotrichloromethane	75-69-4	100
Supplier notification	: fluorotrichloromethane	75-69-4	100

SARA 313 notifications must not be detached from the MSDS and any copying and redistribution of the MSDS shall include copying and redistribution of the notice attached to copies of the MSDS subsequently redistributed.

State regulations : Pennsylvania RTK: fluorotrichloromethane: (environmental hazard, generic environmental hazard)
Massachusetts RTK: fluorotrichloromethane
New Jersey: fluorotrichloromethane

Canada

WHMIS (Canada) : Not controlled under WHMIS (Canada).
CEPA DSL: fluorotrichloromethane

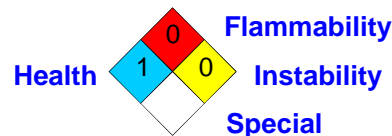
Section 16. Other information

Label Requirements : CAUSES DAMAGE TO THE FOLLOWING ORGANS: PERIPHERAL NERVOUS SYSTEM, CARDIOVASCULAR SYSTEM, RESPIRATORY TRACT, SKIN, EYE, LENS OR CORNEA.

Hazardous Material Information System (U.S.A.) :

Health	*	1
Fire hazard		0
Reactivity		1
Personal protection		C

National Fire Protection Association (U.S.A.) :



Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.